

Procedure of genetic recombination for Galinaceae hybrids breeding

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Abstract

The invention refers to a procedure of genetic recombination for Galinaceae hybrids breeding, specialized in the production of eggs for consumption.

For the achievement of genetic recombination, parents originating from pure homozygous lines for barred (B) and gold (b) heterosomal lines, playing a role in the transmission of feather colour to the resulting hybrid chicks, were selected.

By crossing a homozygous recessive (bb) red Rhode Island male with homozygous dominant (BB) Marans female, two categories of phenotypes, one for each sex, of equal proportion, resulted in F1 generation. The feather colour is genetically determined by the activity of gold and barred genes, present both in the genotype of the heterozygous (Bb) males and in the genotype of the heterozygous (bB) females, the sex being genetically determined by the dominant sex gene, SDW, located in chromosome W and by the recessive sex gene, sdw, located in chromosome Z. The heterozygous genotype SDWsdw determines the female sex, while the recessive homozygous genotype sdwsdw determines the male sex.

The non-allelic interaction of the dominant sex gene on the barred gene overlaps the allelic interaction between the barred and gold genes, the latter one becoming non-functional, and as a consequence the heterozygous females show a different genotype from those observed in the heterozygous males. This feature allows day-old chicks sex screening according to the colour of the juvenile feathers.

The results obtained show that the two monitored characters, the colour of feathers and the sex, are genetically determined by the action of the particular genes and that between the genes coding the two characters there is a linkage both in chromosome Z and in chromosome W.

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(72) Inventor: PRICOP, Florin [RO/RO]; B-dul Camil Ressu
nr. 66, bl. 1, ap. 17, sector 3, R-Bucuresti (RO).

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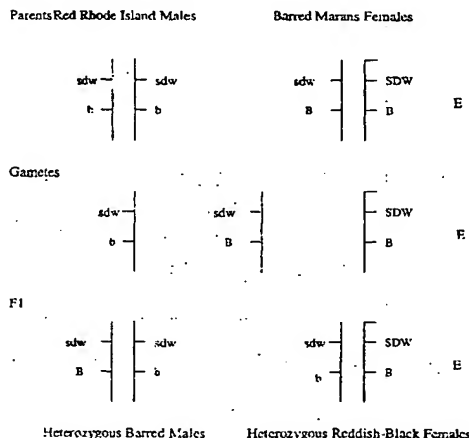
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Procedure of genetic recombination for Galinaceae hybrids breeding.
Homozygous red Rhode Island male is crossing with homozygous barred
Marans female. The F1 generation consists from 50% hybrids male and
50% hybrids female presenting a distinct phenotype.



(57) Abstract: The invention refers to a procedure of genetic recombination for Galinaceae hybrids breeding, specialized in the production of eggs for consumption. For the achievement of genetic recombination, parents originating from pure homozygous lines for barred (B) and gold (b) heterosomal lines, playing a role in the transmission of feather colour to the resulting hybrid chicks, were selected. By crossing a homozygous recessive (bb) red Rhode Island male with homozygous dominant (BB) Marans female, two categories of phenotypes, one for each sex, of equal proportion, resulted in F1 generation. The feather colour is genetically determined by the activity of gold and barred genes, present both in the genotype of the hybrid (Bb) males and in the genotype of the hybrid (bB) females, the sex being genetically determined by the dominant sex gene, SDW, located in chromosome W and by the recessive sex gene, sdw, located in chromosome Z. The heterozygous genotype SDWsdw determines the female sex, while the recessive homozygous genotype sdwsdw determines the male sex. The non-allelic interaction of the sex dominant gene on the barred gene overlaps the allelic interaction between the barred and gold genes, the latter becoming non-functional, and as a consequence the hybrids female show a different genotype from the

one observed in the male hybrids. This feature allows screening day-old chicks by sex according to the colour of the juvenile feathers. The results obtained show that the two monitored characters, the colour of feathers and the sex, are genetically determined by the action of the genes located in the Z and W chromosome and they are in linkage transmitted.

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